

# **METHOD AND APPARATUS FOR DETERMINING THE SOURCE OF USER-PERCEIVED VOICE QUALITY DEGRADATION IN A NETWORK TELEPHONY ENVIRONMENT**

## **ABSTRACT OF THE DISCLOSURE**

Techniques for finding the source of perceptual audio degradation in an IP telephony environment provide a hop-by-hop analysis of a network over which IP telephony is laid, and may be performed by network switching devices, such as routers, gateways and switches. Rather than monitoring packet loss, these techniques employ perceptual measures to determine the source of audio quality degradation in the network, as perceived by a user or caller. Generally, a reference waveform is systematically sent to intermediate network switching devices along the path between two endpoints. Each intermediate device sends back a return waveform that is based on the respective reference waveform received at each device. From comparing the reference waveform with the return waveform, for each round-trip along the path, the degradation of the audio quality is computed for each round-trip path, from which audio degradation is computed for each hop, from which the source of degradation is determined.